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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,811	03/10/2004	Nobuyuki Matsumoto	1232-5333	7108
27123	7590	09/16/2005		
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER COLILLA, DANIEL JAMES	
			ART UNIT 2854	PAPER NUMBER

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/798,811

Applicant(s)

MATSUMOTO ET AL.

Examiner

Daniel J. Colilla

Art Unit

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-18 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claims 9-10 are objected to because of the following informalities:

In claim 9, line 2, it appears that “applies” should actually be --applied-- for proper grammar.

In claim 10, line 2, the phrase, “is a liquid for insolubilize or coagulate a coloring material” does not have proper grammar.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

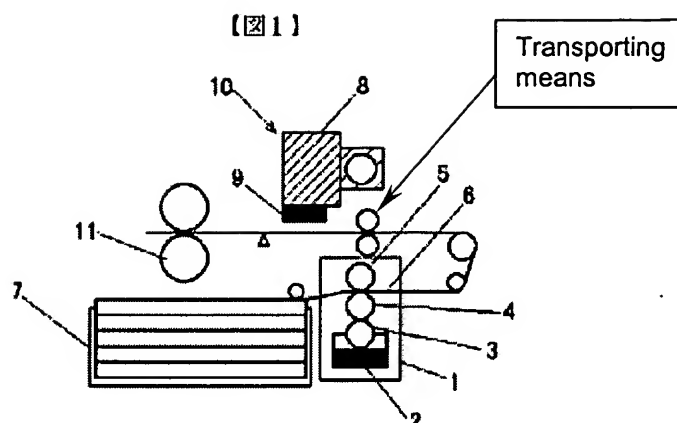
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 4-7, 10-11, 14-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusakabe (JP 2002-103783) in view of Lin et al. (US 6,022,104).

With respect to claim 1, Kusakabe discloses the claimed ink jet printing apparatus except for the suction means. Kusakabe discloses a printing head 9 and a transporting means as shown below in the Figure taken from Figure 1 of Kusakabe:

Art Unit: 2854



Kusakabe further discloses a reacting liquid applying means 1 provided at a location along a transporting path of said transporting means so as to apply a reacting liquid to a whole area of a printing sheet (see paragraph [0029] of the machine translation of Kusakabe). Lin et al. teaches a suction means 110, 120, 122, 220 provided along a transporting path of an ink jet printer that applies a suction force in order to move liquid to an inside of the printing sheet (Lin et al., col. 7, lines 53-56). It would have been obvious to combine the teaching of Lin et al. with the ink jet apparatus disclosed by Kusakabe for the advantage of avoiding smear and intercolor bleeding of the printing ink.

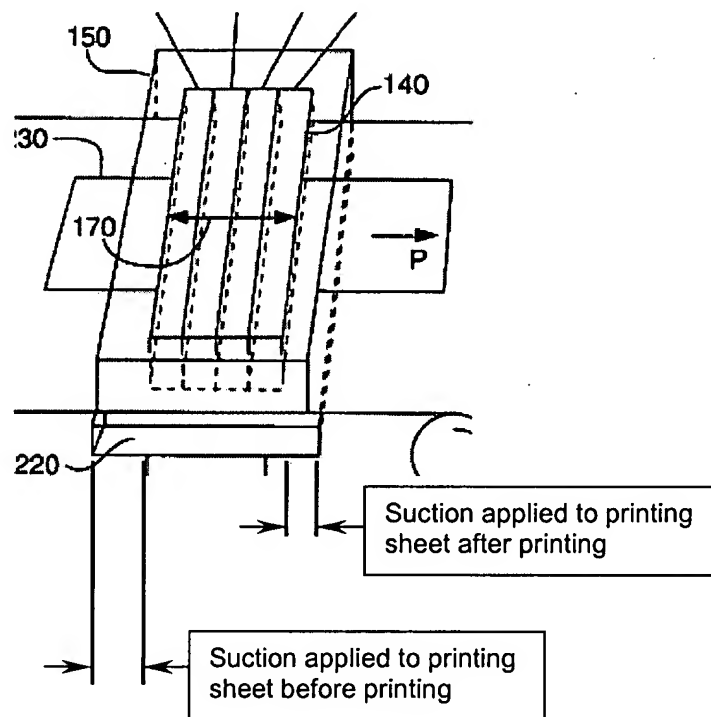
With respect to claim 2, Lin et al. teaches changing a magnitude of a suction force so that a permeation state of the fluid in the printing sheet is varied (Lin et al., col. 12, lines 31-39).

With respect to claim 4, Kusakabe discloses a coating roller 4 for coating a reactive liquid to the print sheet.

With respect to claim 5, the suction means taught by Lin et al. is located under the printing head. In combination with Kusakabe, the suction means would therefore apply the suction force to the printing sheet after the reacting liquid is applied to the printing sheet by roller 4 and while the printhead 9 ejects ink to the sheet. As can be seen below in the figure taken

Art Unit: 2854

from Figure 2 of Lin et al., the suction step is applied to a printing sheet, at least to a certain extent, before ink is ejected to the printing sheet:



With respect to claim 6, the suction means taught by Lin et al. is located under the printing head. In combination with Kusakabe, the suction means would therefore apply the suction force to the printing sheet after the reacting liquid is applied to the printing sheet by roller 4 and while the printhead 9 ejects ink to the sheet.

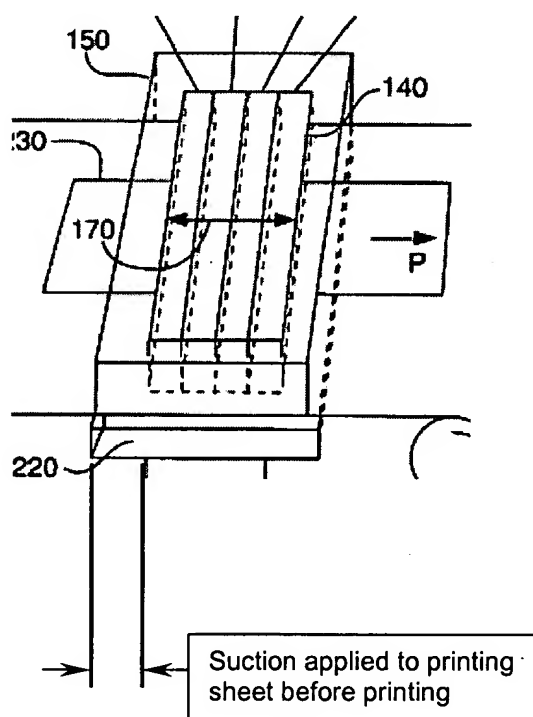
With respect to claim 7, as shown in the above Figure the suction step is applied to a printing sheet, at least to a certain extent, after ink is ejected to the printing sheet.

With respect to claim 10, Kusakabe discloses that the reacting liquid has a coagulant (see paragraph [0008], lines 16-17 of the machine translation of Kusakabe) for coagulating with the ink. Kusakabe discloses using color ink as a reacting liquid in paragraph [0001] of the machine translation.

Art Unit: 2854

With respect to claim 11, Kusakabe discloses using color ink as a reacting liquid in paragraph [0001] of the machine translation. Lin et al. also teaches using color ink as shown in Figure 2 of Lin et al.

With respect to claim 14, Kusakabe in view of Lin et al. discloses the ink jet printing apparatus as mentioned in the above prior art rejection of claims 1 and 14. As can be seen in the below figure taken from Figure 2 of Lin et al., the suction step is applied to a printing sheet, at least to a certain extent, before performing printing:



With respect to claim 15, Kusakabe discloses the claimed ink jet printing method except for the step of applying a suction force on the printing sheet. Kusakabe discloses applying a reacting liquid to a whole area of a printing sheet with roller 4 (see paragraph [0029] of the machine translation of Kusakabe). Lin et al. teaches applying a suction with vacuum chamber

Art Unit: 2854

220 in a direction from an obverse side to a reverse side of a printing sheet in order to move liquid to an inside of the printing sheet (Lin et al., col. 7, lines 53-56). It would have been obvious to combine the teaching of Lin et al. with the ink jet apparatus disclosed by Kusakabe for the advantage of avoiding smear and intercolor bleeding of the printing ink. Kusakabe discloses using color ink in paragraph [0001] of the machine translation. Lin et al. also teaches using color ink as shown in Figure 2 of Lin et al. The suction means taught by Lin et al. is located under the printing head. In combination with Kusakabe, the suction means would therefore apply the suction force to the printing sheet after the reacting liquid is applied to the printing sheet by roller 4 and while the printhead 9 ejects ink to the sheet. As can be seen in the above figure taken from Figure 2 of Lin et al., the suction step is applied to a printing sheet, at least to a certain extent, before performing printing.

With respect to claim 16, Figure 2 of Lin et al. shows that the suction step for applying a suction force on the printing sheet occurs while performing printing.

With respect to claim 18, Kusakabe discloses rolling body 4 that coats the reacting liquid to a printing sheet to a whole area of the printing sheet.

4. Claims 3, 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusakabe (JP 2002-103783) in view of Lin et al. (US 6,022,104) as applied to claims 1 and 15 above, and further in view of Matsumoto (JP 9-295400).

With respect to claim 3, Kusakabe in view of Lin et al. discloses the claimed ink jet printing apparatus except for the printing head for ejecting reactive liquid to the printing sheet. However, Matsumoto teaches a printing head for 33 with a section that ejects a coating liquid W

Art Unit: 2854

as shown in Figure 13 and mentioned in paragraph [0032] of the machine translation of Matsumoto. It would have been obvious to combine the teaching of Matsumoto with the ink jet printer disclosed by Kusakabe for the advantage of reducing the size of the printer by removing the need for a coating roller apparatus.

With respect to claim 8, the vacuum chamber 220 disclosed by Lin et al. would continuously apply a suction force on the transported printing sheet from the time when the reactive liquid is applied to the printing sheet to a time after the ink is ejected to the printing sheet when the printing head 33 taught by Matsumoto et al. is used since the printing head taught by Lin et al. is always located above the vacuum chamber 220 as shown in Figure 2 of Lin et al.

With respect to claim 17, Kusakabe in view of Lin et al. discloses the claimed method of ink jet printing except for applying the reacting liquid as a droplet. However, Matsumoto teaches a printing head for 33 with a section that ejects a coating liquid W as droplets as shown in Figure 13 and mentioned in paragraph [0032] of the machine translation of Matsumoto. It would have been obvious to combine the teaching of Matsumoto with the ink jet printer disclosed by Kusakabe for the advantage of reducing the size of the printer by removing the need for a coating roller apparatus.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kusakabe (JP 2002-103783) in view of Lin et al. (US 6,022,104) as applied to claim 1 above, and further in view of Yoshinaga (US 2002/0041303).

Kusakabe in view of Lin et al. discloses the claimed ink jet printing apparatus except for the suction means using an air suction device used for recovery processing for the print head.



Art Unit: 2854

However, Yoshinaga teaches an air suction device 40 that is used for applying suction to a printing medium and for printing head recovery sections 52a-52d as shown in Figures 1 and 4 of Yoshinaga (paragraph [0061]). It would have been obvious to combine the teaching of Yoshinaga with the ink jet apparatus disclosed by Kusakabe in view of Lin et al. for the advantage of preliminary ink ejection to recovery section 52d in order to clear out ink with higher viscosity in the printing head (Yoshinaga, paragraph [0061], last four lines).

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kusakabe (JP 2002-103783) in view of Lin et al. (US 6,022,104) as applied to claim 1 above, and further in view of Kuboki (US 4,975,780).

Kusakabe in view of Lin et al. discloses the claimed ink jet printing apparatus except for the suction means that controls the suction force correspondingly to an ejection timing and a transporting timing. However, Kuboki teaches adjusting the suction applied to a printing sheet at the time of printing the last line of a printing sheet (last five lines of the abstract); thus the suction depends on the timing of the ejection of the ink to print the last line. This adjustment of suction would also inherently depend on the transportation timing of the sheet since the sheet has to be transported to the printing head in order to reach the last line to be printed. It would have been obvious to combine the teaching of Kuboki with the ink jet printing apparatus disclosed by Kusakabe in view of Lin et al. for the advantage of preventing jamming of the printing sheet due to floating of the sheet while the last line is printed (Kuboki, col. 12, lines 61-64).

*Allowable Subject Matter*

7. Claim 9 is objected to as being dependent upon a rejected base claim and objected to for the above mentioned informalities, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and rewritten to overcome the informalities.

8. The following is a statement of reasons for the indication of allowable subject matter:

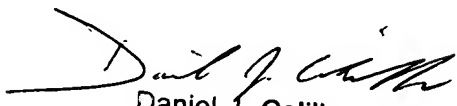
Claim 9 has been indicated as containing allowable subject matter primarily for the means plus function language, invoking 112 sixth paragraph, which includes a suction means which applies a suction that is determined so that a reacted product of the ink and the reacting liquid is uniformly distributed in an inside layer of a printing sheet.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Colilla whose telephone number is 571-272-2157. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on 571-272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 14, 2005

  
Daniel J. Colilla  
Primary Examiner  
Art Unit 2854